

**REMARKS**

Claims 1-6, 16, 17, 21, 22, and 32-39 are pending. Favorable reconsideration in light of the amendments and remarks which follow is respectfully requested.

**35 U.S.C. §103 Rejections**

Claims 1-6, 16, 17, 21, 22, 32-35, 38, and 39 are rejected under 35 U.S.C. §103(a) over US 3,589,846 (Place), EP 000385910B1 (EP '910), US 5,660,043 (Pfefferle et al), US 5,899,684 (McCoy et al), US 5,206,484 (Issartel), and US 4,106,889 (Katchka). Claims 36 and 37 are rejected under 35 U.S.C. §103(a) over Place, EP'910, Pfefferle, McCoy, US 4,418,661 (Esper), US 5,233,166 (Maeda et al), and US 4,762,982 (Ohno et al). Applicants respectfully traverse.

Applicants note that in response to the Office's assertion on Page 2 that Applicants presented "arguments against the references individually", contrary to this assertion, Applicants submit that they have not argued against the combination of Place, EP '910, Pfefferle, McCoy, Issartel, and Katchka solely on the basis of the references individually. Rather, Applicants argued that neither Place, EP '910, Pfefferle, McCoy, Issartel, or Katchka teach or suggest a control system designed so as to provide re-ignition time period of about 6 second or less. It is entirely proper to argue that six references, all of which are devoid of a claimed feature, do not teach or suggest the claimed feature even when combined.

With respect to the current rejection of the claims, in the present Office action on page 8, the Office asserts that Place describes a system that following successful ignition of the gas, "the electrical resistance igniter can be re-heated so as to re-ignite the gas within a desired re-ignition time period".

Applicants submit that Place explicitly describes a system wherein:

In the event that ignition does not occur or *combustion is terminated for any reason*, the system *automatically recycles* after a sufficient delay to permit complete purging of the products of combustion of unburned fuel. (col. 1, lines 62-65)

Thus, according to Place, prior to any re-ignition, recycling automatically occurs. As set out by Place, “recycling when ignition fails to occur or after combustion is terminated is usually about *60 seconds*” (col. 6, lines 21-23). Thus, while Place may set out a guideline as to re-ignition, such re-ignition will require automatic recycling and will take about 60 seconds. This is clearly not in accordance with the re-ignition provided by Applicants’ control systems.

EP ‘910 is cited for allegedly describing a micro-controller and applications program for outputting control signals to a switching mechanism to selectively control voltage and current being applied to an electric resistance igniter. Without agreeing with or acquiescing to this allegation, Applicants note that even if EP ‘910 was combined with Place, the combination still teaches automatic recycling upon termination of combustion which, as set out, will take about 60 seconds. Like Place, EP ‘910 does not teach re-ignition within 6 seconds as provided by Applicants’ control systems and, thus, combination of Place and EP ‘910 still would not teach or suggest Applicants’ control systems.

Pfefferle is cited as allegedly describing ignition of a gas and subsequent operation of the igniter at a temperature less than ignition temperature so that the igniter can be re-heated to re-ignite within a desired re-ignition time period. The Office asserts on page 9 of the Office action that it would have been obvious to one of skill in the art to operate Place in a manner which would permit near instantaneous relight (e.g. in view of Pfefferle) and that the desired re-ignition time period “can be viewed as nothing more than merely a matter of choice in design” (page 10 of the Office action).

Applicants disagree. Place explicitly teaches a system designed such that if “combustion is terminated for any reason, the system automatically recycles after a sufficient delay to permit complete purging of the products of combustion or unburned fuel” and that such recycling is usually about 60 seconds. The automatic recycling is required by Place and, when one reads the entire disclosure of Place is clearly the basis of Place’s control system.

The Offices' proposed modification of the references: "it would have been obvious to a person having ordinary skill in the art to operate US003589846 (Place) in a manner which would permit near instantaneous relight, that is, less than six seconds" (as taken from page 9 of the Office action) would without a doubt change the principal of operation of Place which is improper (*In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959); MPEP §2143.01). Contrary to the Office's assertion on page 2 of the Office action, this argument by Applicants (which was also in Applicants' March 10, 2009 Response) is not an "argument against the references individually" and is not "attacking references individually where the rejections are based on combinations of references". This argument, rather, is an argument that the Office's proposed combination of Place and Pfefferle (and any other references that allegedly describe fast re-ignition) impermissibly changes the principal of operation of Place - which is entirely proper to argue. Further, nowhere does Pfefferle even mention what could be considered "near instantaneous relight" and one cannot merely select and import a time period into the Pfefferle document.

With respect to the Office's assertion that McCoy "for more than twenty years" "discloses these strong oxidation resistant ceramic hot surface ignition elements reaches ignition temperature in less than 10 to 15 seconds" (page 3 of the Office action), Applicants submit that *ignition* is not the claim limitation -- re-ignition is the claim limitation. Thus, this passage of McCoy doesn't at all "acknowledge the use of ceramic electric resistance ignition elements as particularly useful to produce quick re-ignition response".

With respect to the Office's assertion on page 9 of the Office action that McCoy "teaches, from the same appliance control field of endeavor, to provide fast re-ignition period of less than 6 seconds ("if the flame is not is not detected in less than one second after the igniter is de-energized")" Applicants respectfully submit that McCoy does not teach a re-ignition period less than 6 seconds. For example, this quoted passage of McCoy provides that:

The present invention relates to the control of fuel burning devices in general... that further includes a trial ignition period during which time a blower motor of the split-phase type, and having a main winding and an auxiliary start winding, provides both air and fuel to the combustion chamber. If the flame is not detected in less than one second, the device is de-energized and starting must be retried. (Col. 1, lines 10-26)

As set out by McCoy, a “flame detector” is associated with the combustion chamber for generating a signal if a flame is detected, and a control assembly is provided for starting and maintaining fuel oil burning. In particular, the control assembly generates a signal to “preheat the igniter for a first predetermined period of time known as the *igniter preheat time period*” and to provide heat for a “second predetermined period of time known as the *trial ignition time period*” and further generates a signal for introduction of air and fuel into the combustion chamber “at the beginning of the trial ignition time period and for a very short time period known as the *flame test time period*” and it “de-energizes the fan blower motor which removes the fuel to the burner, if normal ignition does not occur during the flame test time period.” (Col. 4, lines 40-58).

In particular McCoy provides the following series of time periods for igniter start-up: (1) igniter preheat time period, (2) trial ignition time period, and (3) flame test time period. The “less than one second” time period pointed to by the Office is the time period *following the trial ignition period* and is known as the “*flame test time period*”. The flame test time period has nothing to do with the time it takes for re-ignition but, rather, it is a *period of time following the ignition time period during which the igniter is monitored* to determine whether ignition occurred (whether a flame is detected). If a flame is not detected in this one second period, *then* “the device is de-energized and starting must be retried”.

Thus, it is submitted that McCoy does not teach or suggest a control system that provides a re-ignition period less than 6 seconds. The portion of McCoy that sets out that for more than twenty years, ceramic hot surface ignition elements (noted as low voltage 12 and 24 volt igniters) have been taught that reach ignition temperature in less

than 10 to 15 seconds merely describes *ignition* of low voltage igniters and has nothing to do with re-ignition. The portion of McCoy that relates to a time period of less than one second is a *flame test period that is a time following ignition* wherein presence or absence of a flame is determined.

With respect to Issartel, which is described in the Office action on page 5, it is noted that this section of Issartel quoted in the Office action describes that a time required to *preheat* glow plugs can vary. The present claim limitation is directed to re-heating and not preheating and, thus, it is submitted that Issartel does not add to the above-cited references.

Katchka is cited for allegedly describing the use of “combustible fuel such as propane, natural gas and the like” for operating fuel fired appliances of the type using electric resistance igniters. Without agreeing with or acquiescing with this assertion, Applicants respectfully submit that even if Katchka was combined with Place, EP ‘910, Pfefferle, McCoy, and Issartel, Applicants claimed control systems still would not be taught or suggested. In particular, none of the cited references teach Applicants’ claimed re-ignition periods – thus, no combination of the references could provide this claim limitation which is absent from all six references. Further, even in the references relied upon did describe such re-ignition, the Office’s proposed combination so as to provide Place with such a re-ignition period goes directly against the teaching of Place which requires automatic recycling in the event that combustion is stopped for any reason and wherein such recycling will take about 60 seconds. A proposed modification cannot be made so as to provide a case of obviousness where that modification would change the principal of operation of a reference, which is clearly the case here.

Thus, it is respectfully submitted that claims 1, 6, and 38, and all claims dependent therefrom, are patentable over the cited references. Reconsideration and withdrawal of the rejection is respectfully requested.

Further with respect to dependent claims 36 and 37, which are cited based on

the combination of references above and further in view of US 4,418,661 (Esper), US 5,233,166 (Maeda et al.) and US 4,762,982 (Ohno et al), Esper, Maeda, and Ohno are cited for allegedly describing that sintered ceramic electrical resistance ignition elements are used widely as an ignition source for various combustion heating apparatuses.

Without agreeing with or acquiescing with this assertion, Applicants respectfully submit that even if Esper, Maeda, and Ohno were combined with Place, EP '910, Pfefferle, McCoy, and Issartel, Applicants claimed control systems still would not be taught or suggested for the same reasons as provided above. Namely, Esper, Maeda, and Ohno all fail to teach or suggest Applicants' claimed re-ignition periods – thus, no combination of the six references plus the three new references could provide this claim limitation which is absent from all nine references. Further, even in the references relied upon did describe such re-ignition, the Office's proposed combination so as to provide Place with such a re-ignition period goes directly against the teaching of Place and would impermissably change the principal of operation of a reference.

In view thereof, claims 1, 6, and 38, and all claims dependent therefrom, are patentable over the cited references. Reconsideration and withdrawal of the rejection is respectfully requested.

**CONCLUSION**

It is respectfully submitted that the subject application is in a condition for allowance. Early and favorable action is requested. If for any reason a fee is required, a fee paid is inadequate or credit is owed for any excess fee paid, you are hereby authorized and requested to charge Deposit Account No. 04-1105.

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Respectfully submitted,

By: /Lisa Swiszc Hazzard/

Lisa Swiszc Hazzard

Registration No.: 44,368

EDWARDS ANGELL PALMER & DODGE LLP

P.O. Box 55874

Boston, Massachusetts 02205

(617) 517-5557

Attorneys/Agents For Applicant